REMARKS

Claims 1-18 are pending in the application, with Claims 1, 5-10 and 14-18 being the independent claims. Claims 1-4 and 10-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kim (U.S. Patent No. 5,960,029) in view of Kishi (U.S. Patent No. 6,888,813 B1) and Johnston (U.S. Patent No. 5,481,614). Claims 5, 7, 8, 14, 16 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kim in view of Kishi. Claims 6, 9, 15 and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kim in view of Kishi and Bottomley (U.S. Patent No. 6,515,980).

Claims 1, 5, 6, 8, 9,10, 14, 15, 17 and 18 of present application recite either an apparatus or a method for generating a modulated pilot symbol by outputting an input pilot channel data on one or at least one of a designated complex channel and at a designated phase according to an information bit for determining the respective complex channel or designated phase. The present invention spreads a modulated pilot symbol by selecting one of orthogonal codes previously agreed to with a receiver so the spread modulated pilot symbol represents information corresponding to the selected orthogonal code. The present invention transmits predefined side information according to orthogonal codes that are multiplied for spreading.

Kim describes a coherent dual-channel QPSK modulator/demodulator for a CDMA system, and modulating/demodulating methods therefore. The simple feature of spreading pilot signals input to an I channel and a Q channel to different Walsh codes from each other, disclosed by Kim, is completely different from the feature of transmitting predefined side information according to orthogonal codes that are multiplied for spreading, which is disclosed in the present invention.

Kishi describes a large-capacity CDMA transmission system that can realize communication with a moving unit, and transmit more quantity of information than a conventional system without increasing the occupied bandwidth, using the same or narrower frequency bandwidth. Kishi teaches that in order to compensate for any error due to occurrence

of fading in a phase of a modulated signal received in a receiver, a pilot signal spread to a specific spread code is concurrently transmitted so a phase error can be detected from the received pilot signal and can be compensated. Kishi teaches a general spread of a CDMA communication method, which fails to teach or reasonably suggest a method of transmitting a spread pilot signal by a corresponding orthogonal code and transmitting the corresponding information bit by previously agreed information bits corresponding to orthogonal codes.

Johnston describes a method and apparatus for coding audio signals based on a perceptual model. Johnston merely mentions side information and fails to teach or reasonably suggest an apparatus and method for transmitting side information on a burst pilot channel according to the present invention.

Bottomley describes communications apparatus and methods in which a communications signal that includes components of both a desired signal and an interfering signal, is correlated with both the desired signal's modulation sequence and with a combination of the desired signal's modulation sequence and a complex component of the interfering signal's modulation sequence, to produce respective first and second correlation outputs. Bottomley relates to a method and apparatus for interference cancellation using complex interference orthogonalization techniques. Bottomley fails to disclose generating a demodulated pilot symbol corresponding to information bits in a predefined phase according to the present invention.

Further, with respect to Claims 1 and 10, the Examiner concedes that neither Kim nor Kishi disclose the burst pilot channel transmits side information being dependent on the transmission data according to at least one of the phase, the complex channel and the orthogonal channel. The Examiner asserts that Johnston teaches the claimed side information because Johnston discloses a bit flag which specifies the coding mode of the band to transmit side information.

Johnston plainly describes in col. 21, lines 3-6 how "a one bit flag is associated with each band that specifies the coding mode of that band." The bit flag suggested by Johnston specifies

the coding mode and **does not** designate or determine the respective phase or complex channel of the output signal.

The Examiner has again failed to address the recited information bit used in generating the claimed modulated pilot symbol. The Examiner merely states that neither Kim nor Kishi disclose that the burst pilot channel transmits side information being dependent on the transmission data according to at least one of the phase, and the complex channel and the orthogonal code.

However, Claims 1 and 10 each recite generating a modulated pilot channel data or symbol by outputting an input pilot channel data or input pilot symbol on at least one of a designated phase and on a designated complex channel according to an information bit for designating or determining at least one of the phase and the complex channel. Kim and Kishi both fail to teach or reasonably suggest an information bit for designating or determining at least one of the phase and the complex channel, and Johnston fails to cure this deficiency of Kim and Kishi.

Accordingly, Claims 1 and 10 are allowable over Kim, Kishi and Johnston.

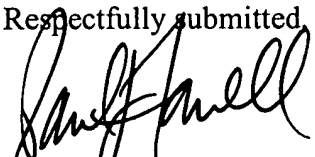
While not conceding the patentability of the dependent claims, *per se*, Claims 2-4 and 11-13 are allowable over Kim, Kishi and Johnston for at least the above reasons.

Claims 5-9 and 14-18 contain similar recitations to claims 1 and 10 and are allowable over the cited art for at least the above reasons.

Applicant respectfully requests reconsideration and withdrawal of the rejection of Claims 1-4 and 10-13 under 35 U.S.C. § 103(a) as being unpatentable over Kim in view of Kishi and Johnston, the rejection of Claims 5, 7, 8, 14, 16 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Kim in view of Kishi, and the rejection of Claims 6, 9, 15 and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kim in view of Kishi and Bottomley.

Accordingly, all of the claims pending in the Application, namely, Claims 1-18, are believed to be in condition for allowance. Early and favorable action is respectfully requested. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,



Paul J. Farrell
Reg. No. 33,494
Attorney for Applicant

DILWORTH & BARRESE
333 Earle Ovington Blvd.
Uniondale, New York 11553
Tel: (516) 228-8484
Fax: (516) 228-8516

PJF/TCS/dr